

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

# Operations & Maintenance

## Electronic Support & Data Acquisition



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# Agenda

- **Operations & Maintenance - Alex Damian**
- **Installation & Instrumentation - Eulogio Alvarado**
- **Maintenance & Measurements - Garnett Ritchie**
- **ESDA Challenge Management - Alex Damian**



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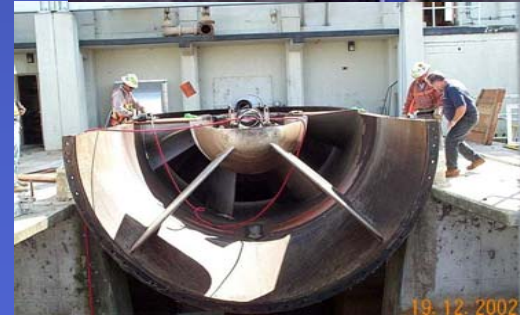
# Major Strategic Accomplishments in Operations & Maintenance

- Public Private Partnership at its best
- Operations & Maintenance 50 Year Plan
- Business Strategic 10 Year Plan
- Reengineering the Organization



## O&M The 50 Year Plan

- A link between the C&SFP and CERP
- Life Cycle Cost/Total Ownership Cost
- Budgeting/Earned Value Methodology
- Financial Tool/Partnership with USCOE
- Prioritization Tool
- Contracting/Outsourcing Tool



# Agenda

## ESDA Installation & Instrumentation Eulogio Alvarado



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# Installation & Instrumentation

- Remote Terminal Units: CR-10, MOSCAD, RACU
- SW & HW Standardization
- SW & HW Development
- Telemetry & SCADA Integration
- Electronic Registration

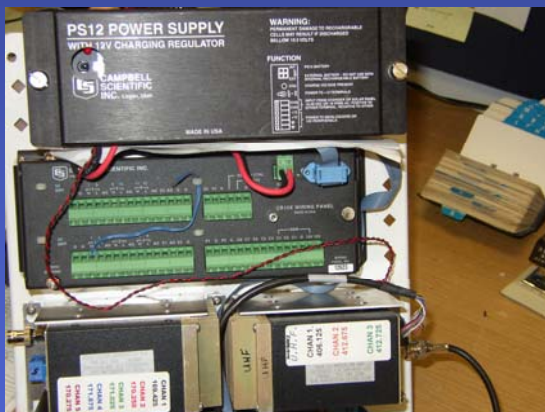




# Installation & Instrumentation

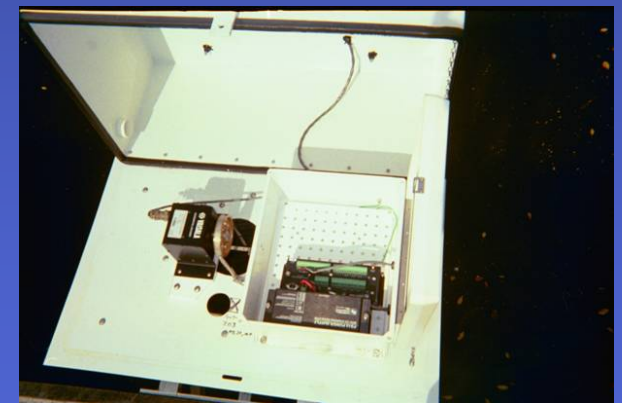
Remote Terminal Units:

CR-10, MOSCAD, RACU



# Installation & Instrumentation

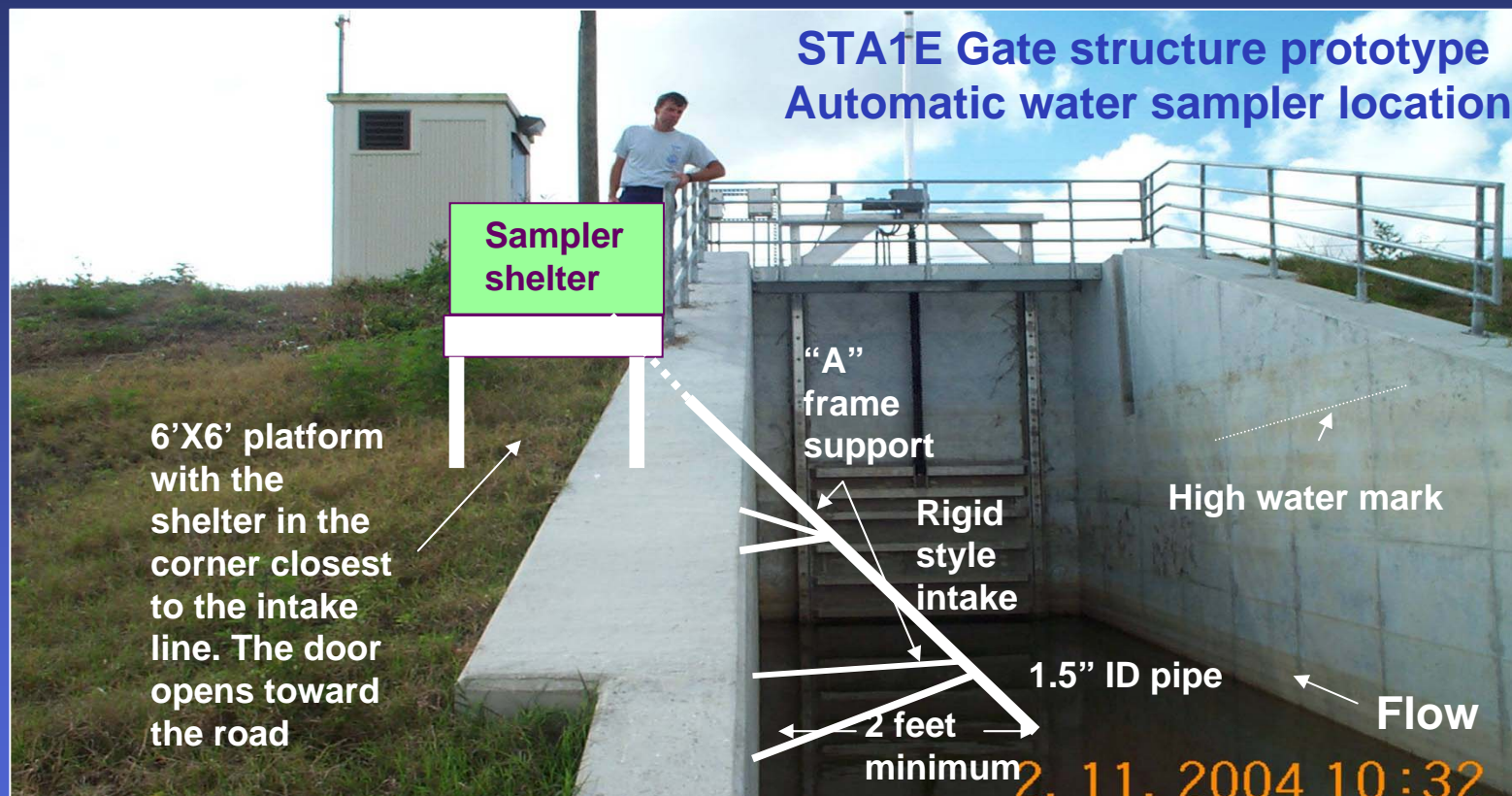
- Standardization
  - Site Specific Drawing Packages
  - Application Specific Sensors
  - Water Control Structures Design
  - Pump Stations SW & HW deployment
  - Unified Telemetry System Architecture





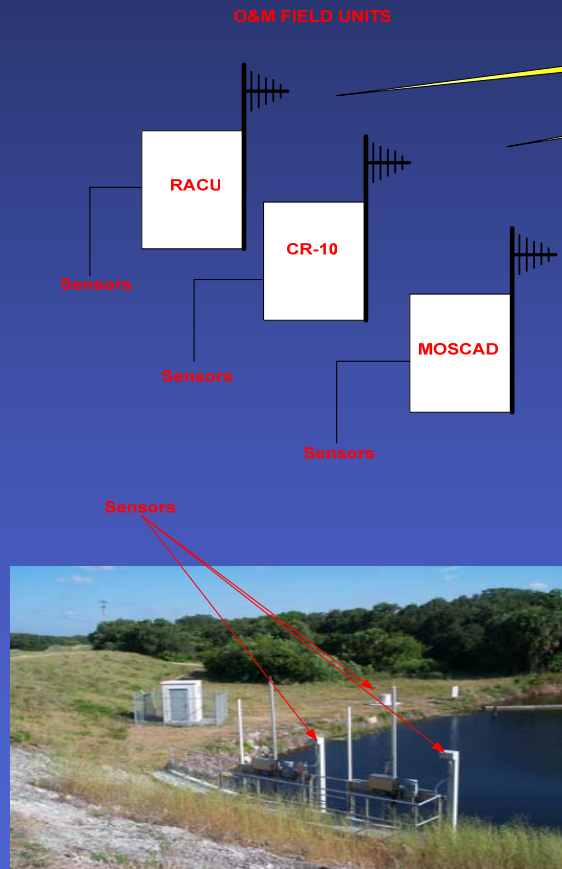
# Installation & Instrumentation

## ■ Typical Water Quality Control Structures Design

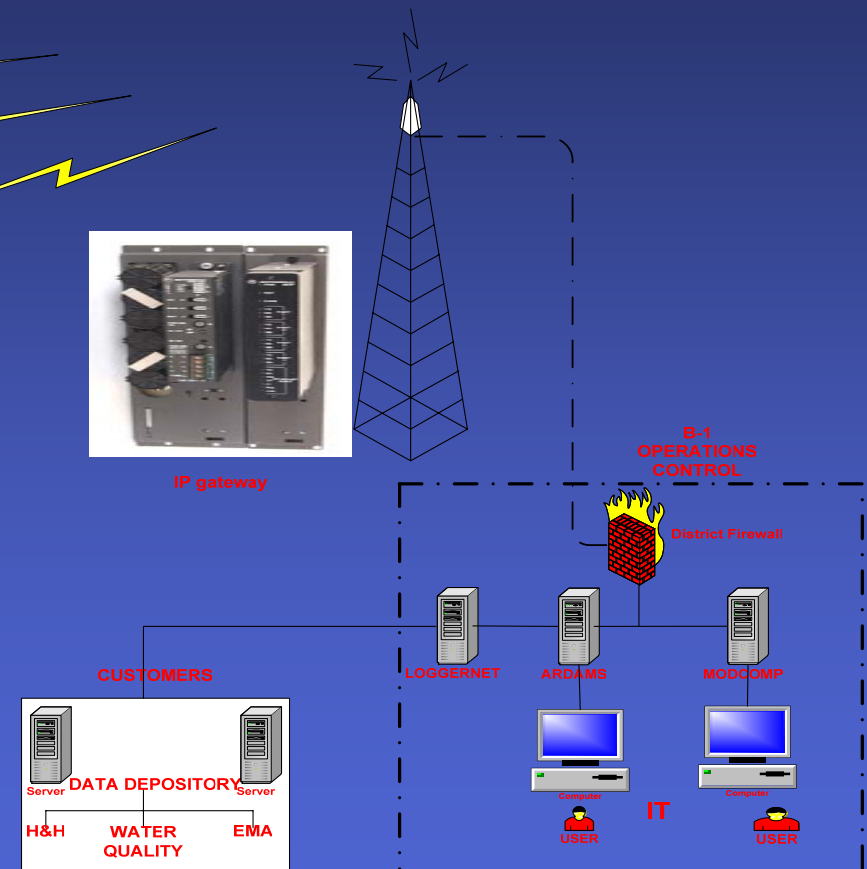


# Installation & Instrumentation

## ■ SCADA OVERVIEW



## O&M SCADA OVERVIEW



# Installation & Instrumentation

- Registration Form
  - Type of RTU
  - Confirm Inputs/Outputs
  - Location of the site
  - Survey
  - Specifications
  - Calibration of sensors



# Installation & Instrumentation

## ■ Remote Monitor & Control Equipment

Electric Pumps



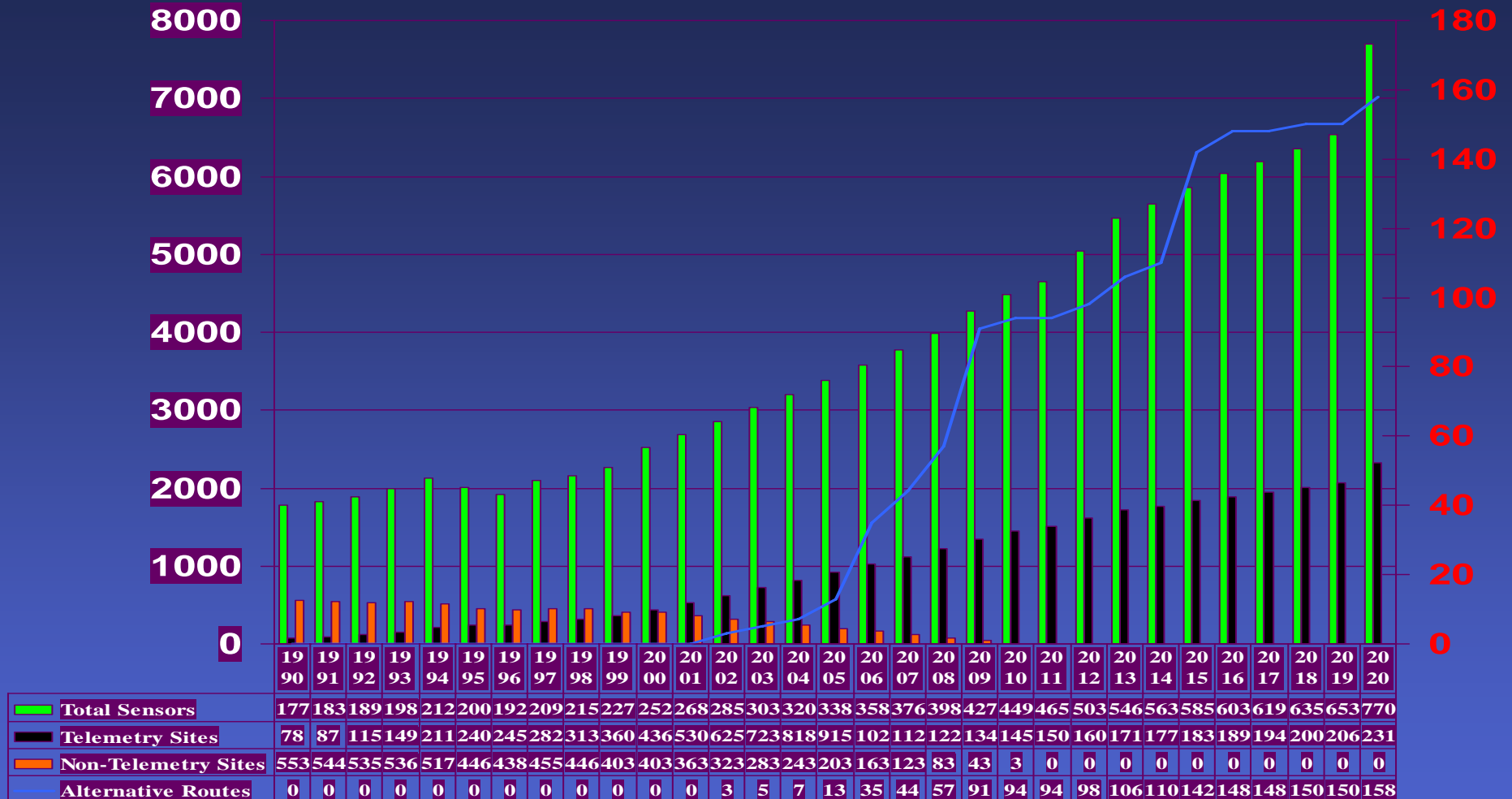
Generators



Diesel Pumps



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■ Total Sensors    
 ■ Telemetry Sites    
 ■ Non-Telemetry Sites    
 — Alternative Routes



# Agenda

Maintenance & Measurements  
Garnett Ritchie



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# Maintenance & Measurements

- Current Status
- Geographic Coverage
- Preventive Maintenance Commitment
- Services for Customers
- SW & HW Lab Testing/Validation
- Training Opportunities for Internal/External Professionals



# Maintenance & Measurements

## ■ Current Assets

- Over 800 CR-10 (Campbell Scientific Units)
- Over 200 MOSCAD units
- Over 120 RACU units
- 25 Weather Stations

## ■ Next 8 Years – Critical for us

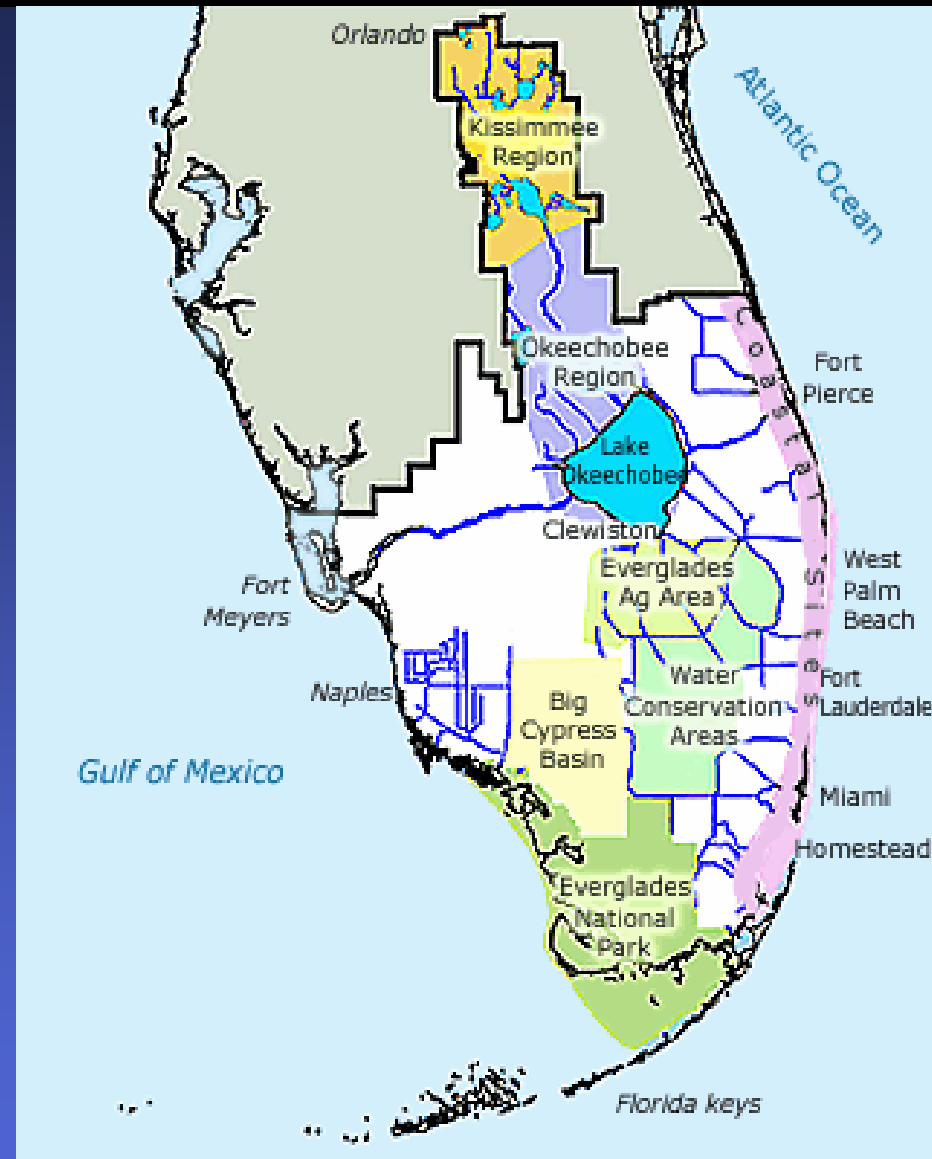
- Over 1,200 new RTUs in the field
- Over 4,000 sensors
- Triples today's workload





# Maintenance & Measurements

District wide coverage



## ■ Preventive Maintenance

- Meet Customers' Goals
  - Minimize emergencies
  - Reliable equipment performance all the time
  - Less than 72 hours without data
- Flexible Cross Trained Team
- Maximize Productivity
- Just In Time Electronic Warehouse setup
- Managing Contracts with External Suppliers



# Maintenance & Measurements

## ■ Lab Testing

- Software & Hardware
- New Sensor Technology
- Validate / Certify Outside Production Enviroment



# Maintenance & Measurements

- Lab Validation
  - Radio Testing / Configuration
  - Functional testing SW & HW
  - Validate / Certify Outside Production Enviroment



# Maintenance & Measurements

## FUNCTIONS

- **PREVENTIVE MAINTENANCE & DATA COLLECTION**
- CR-10/Loggernet
- MOSCAD, RACU
- WEATHER STATIONS

- **EMERGENCY MAINTENANCE**
- CR-10/Loggernet
- MOSCAD, RACU
- WEATHER STATIONS

## SERVICES PROVIDED

- CUSTOMER TAILORED PROGRAM
- SYSTEM RELIABILITY
- SOP
- CONTRACT MGMT.

- CUSTOMER TAILORED PROGRAM
- SYSTEM RELIABILITY
- SOP
- INTERNAL RESOURCES

# Maintenance & Measurements

MAINTENANCE AND DATA  
COLLECTION

CUSTOMERS

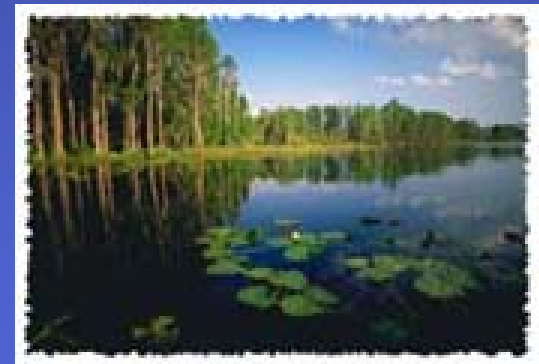
**ESDA**  
**CORE**  
**COMPETENCY**

DISTRICT DEPARTMENTS

EXTERNAL AGENCIES

O&M  
SUPPORT  
LOGISTICS

PRIVATE  
PARTNERSHIP  
SUPPORT





# Maintenance & Measurements

- ESDA Lab Training Enviroment





# Agenda

**ESDA Challenge Management**  
**Alex Damian**



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## Developing ESDA Strategic Business Plan

- Past 4 Years: 20% FTE Reduction – 40% Workload Increase
- Establish Vision and Mission within O&M
- Define the Business Plan and Organizational Strategy
- Design the Organizational Structure and Relationships
- Develop, Set Goals and Targets



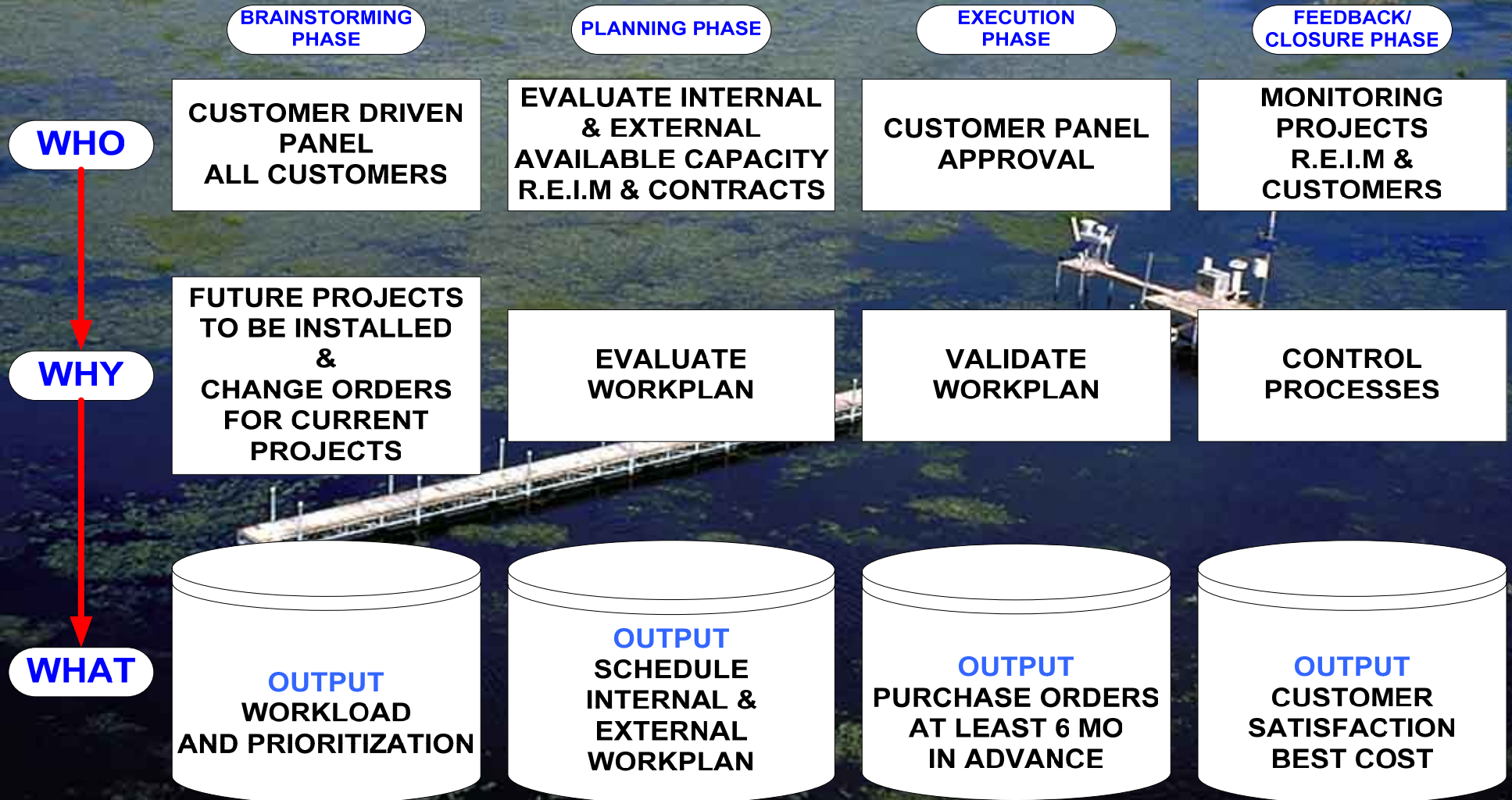
# Re-engineering Process

- Process Analysis and Mapping
- Internal/External Feedback
- Focus on Priorities and Maximize Productivity
- Standardize the Way We Do Business
- Continuous Improvement Review Process
- Since 01/05/04 Productivity Increase of 60%



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## WORKING METHODOLOGY PROCESS FLOW



# Who makes it possible ?

Who are they ?

The ESDA TEAM



# SOUTH FLORIDA WATER MANAGEMENT DISTRICT



Elvie

Andy



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# SOUTH FLORIDA WATER MANAGEMENT DISTRICT



Elvie

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# SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Jim



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# SOUTH FLORIDA WATER MANAGEMENT DISTRICT



Dave



John





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# SOUTH FLORIDA WATER MANAGEMENT DISTRICT



Stan



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# SOUTH FLORIDA WATER MANAGEMENT DISTRICT



Doug

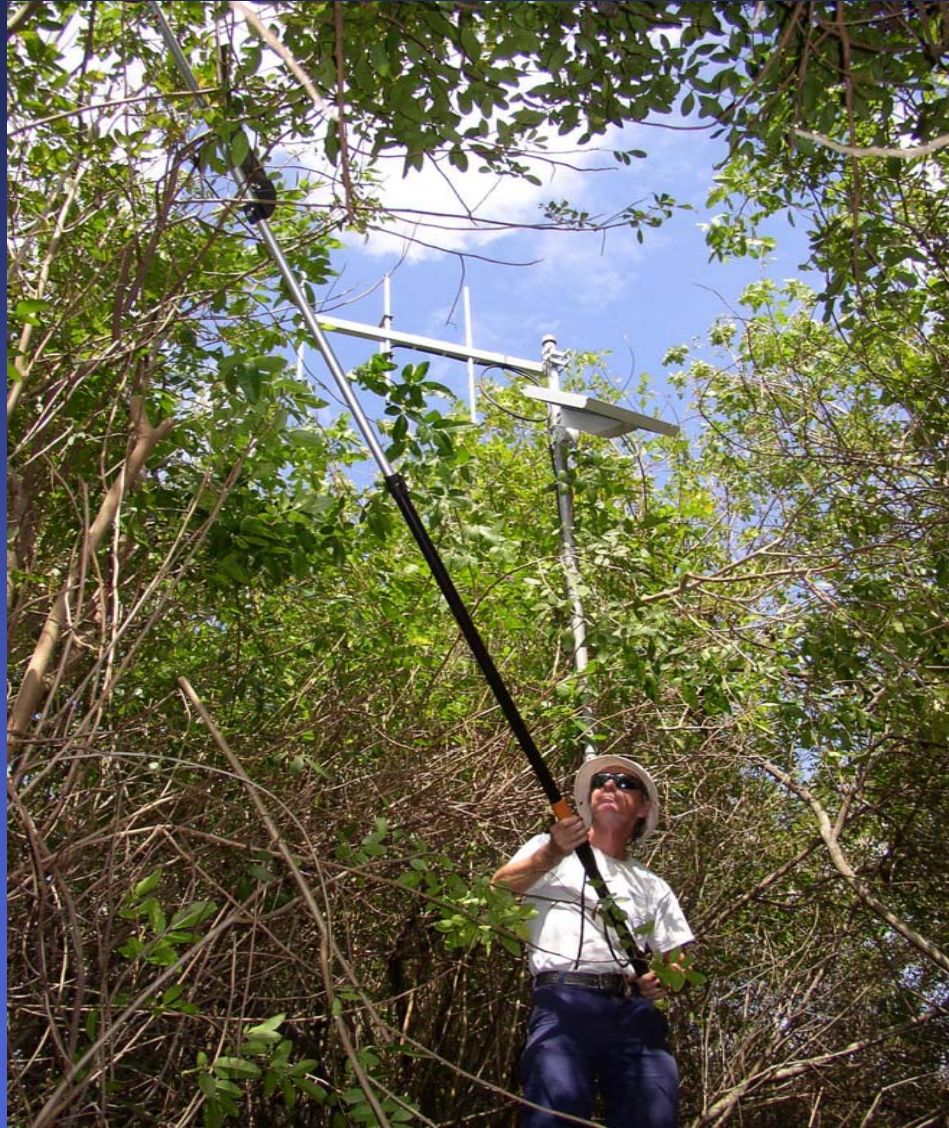


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Jim



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**KRCN 5-2-01**  
**Karl Snyder dedicates**  
**himself to carefully calibrating the sensors.**



Karl





# SOUTH FLORIDA WATER MANAGEMENT DISTRICT



**Juan**



**John**



# SOUTH FLORIDA WATER MANAGEMENT DISTRICT



Lee

J  
o  
h  
n

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# SOUTH FLORIDA WATER MANAGEMENT DISTRICT

**Blair**



**Dave**





# SOUTH FLORIDA WATER MANAGEMENT DISTRICT



Daniel

Erika



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# SOUTH FLORIDA WATER MANAGEMENT DISTRICT



Jim

Lee





# SOUTH FLORIDA WATER MANAGEMENT DISTRICT



Duane



Dave



# SOUTH FLORIDA WATER MANAGEMENT DISTRICT



Wayne

Esteban



# SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Jayesh



Mike





# SOUTH FLORIDA WATER MANAGEMENT DISTRICT



Stan

Jim



# SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Jay



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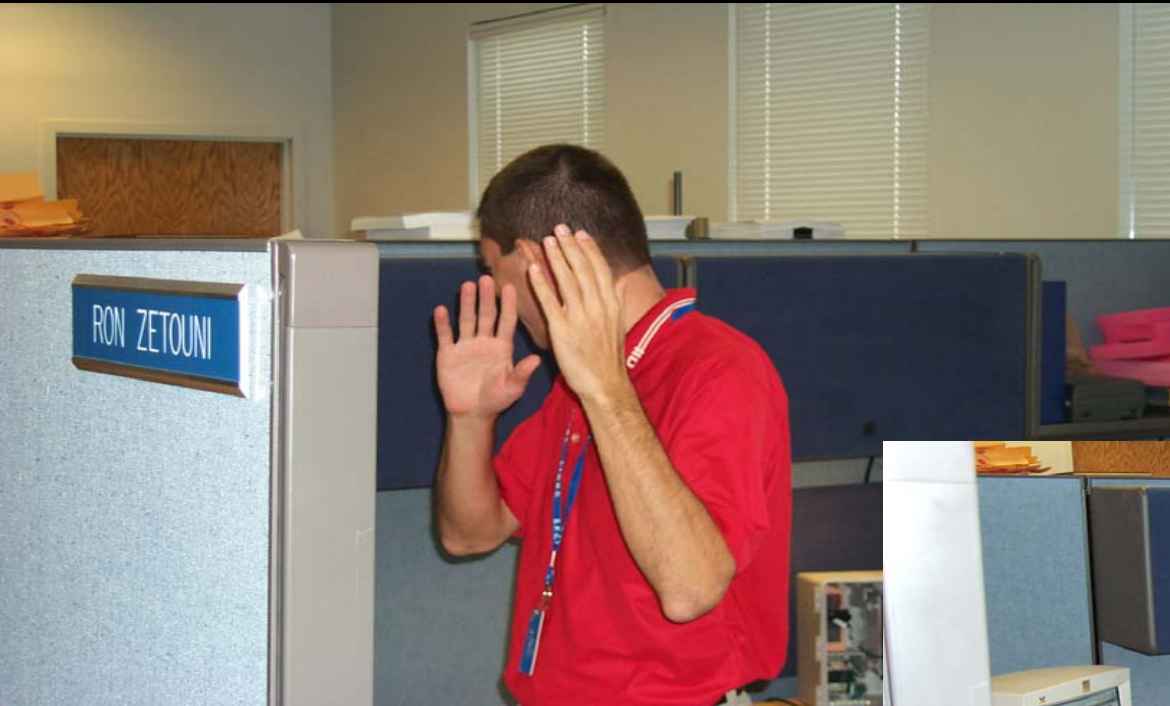
Kiyuana



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# SOUTH FLORIDA WATER MANAGEMENT DISTRICT



Ron



SOUTH FLORIDA WATER MANAGEMENT DISTRICT



Vic

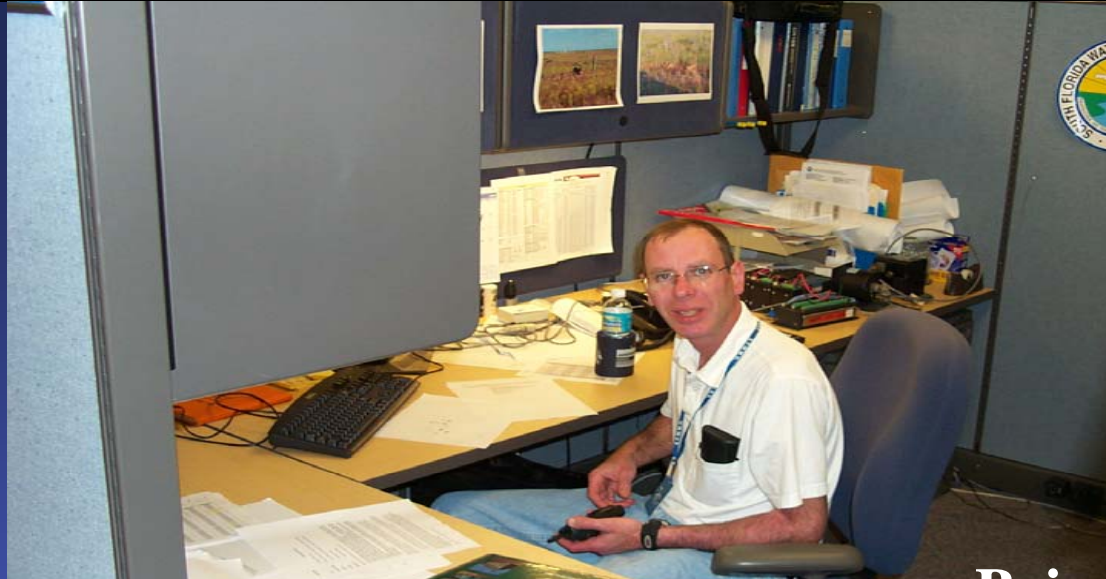
Wayne

Joel





# SOUTH FLORIDA WATER MANAGEMENT DISTRICT



Brian





# SOUTH FLORIDA WATER MANAGEMENT DISTRICT



Frank



# SOUTH FLORIDA WATER MANAGEMENT DISTRICT

**Kathy**





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Alex

Loy

Garnett



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